

REMARKS/ARGUMENTS

Reconsideration and withdrawal of the rejections of the application are respectfully requested in view of the amendments and remarks herewith, which place the application into condition for allowance. The present amendment is being made to facilitate prosecution of the application.

I. STATUS OF THE CLAIMS AND FORMAL MATTERS

Claims 1-16 are pending in this application. Claims 1, 6, 11-13, and 15 are independent. Claims 2-5, 7-10, 14 and 16 are dependent.

II. REJECTIONS UNDER 35 U.S.C. § 112

Claims 1, 6, 11-13 and 15 were rejected under 35 U.S.C. § 112 as failing to comply with the written description requirement. Specifically, claims 1, 6, 11-13 and 15 were rejected in the Office Action because the phrase "a timing of a potential risk" allegedly was not described in the specification.

Applicant respectfully disagrees. However, paragraph [0161] on page 8 of the published specification has been amended to specifically include the phrase "a timing of a potential risk" to clarify the language already included in the specification and avoid any possible issue regarding an antecedent basis in the specification. As amended, the specification now reads:

"[0161] "Safety level" indicates the safety level in safe space. In the robot 1 of this embodiment, this "safety level" includes a timing of a potential risk with an ignorance stage which is identified as safe (for example, FIG. 15A, FIG. 17A and FIG. 19A), **a warning stage which is identified as having some time**

to insertion or contact with an obstacle (for example, FIG. 15B, FIG. 17B and FIG. 19B), and **an emergent stage which is identified as a status where insertion or contact with an obstacle will happen in the near future** (for example, FIG. 15C, FIG. 17C and FIG. 19C). Specifically, as to safe space at the back of the knee joint mechanisms 38 of the leg units 6A and 6B (see FIG. 14) and safe space formed by the robot 1 and surroundings, an emergency prevention stage which is identified as a status where the insertion has occurred or an obstacle is very close (For example, FIG. 15D) is also prepared as the "safety level". Such "safety level" is prescribed by considering the torque output capability of the actuators A± to A17, a joint angle formed by links, a planned action and so on together. However, this prescription is not limited to this and other elements can be considered as well." (emphasis added)

Support for this amendment may be found, for example, in the phrases "an ignorance stage which is identified as safe", "a warning stage which is identified as having some time to insertion or contact with an obstacle", and "an emergent stage which is identified as a status where insertion or contact with an obstacle will happen in the near future". Each of these phrases appropriately describes "a timing of a potential risk" because each phrase describes a risk, *i.e.* "an ignorance stage", "a warning stage", and "an emergent stage". Additionally, each stage describes the timing of each risk, for example "safe" describes no imminent risk, "having some time" describes a risk that must be dealt with soon, and "will happen in the near future" describes a risk that must be dealt with very quickly. Thus, the original specification adequately supports the phrase "a timing of a potential risk" as used in claims 1, 6, 11-13 and 15. No new matter has been added. Applicant respectfully requests that the rejection of claims 1, 6, 11-13 and 15 under 35 U.S.C. § 112 be withdrawn.

III. REJECTIONS UNDER 35 U.S.C. §102(e) and §103(a)

Claims 1, 3, 6, 8, 11-13 and 15 were rejected under 35 U.S.C. §102(e) as allegedly anticipated by U.S. Patent No. 6,330,494 to Yamamoto (hereinafter, merely “Yamamoto”).

Claims 2, 7, 14, and 16 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Yamamoto in view of U.S. Patent No. 6,902,015 to Furuta, et al. (hereinafter, merely “Furuta”).

Claims 4 and 9 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Yamamoto in view of U.S. Patent No. 6,463,356 to Hattori, et al. (hereinafter, merely “Hattori”).

Claims 5 and 10 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Yamamoto in view of U.S. Patent No. 5,349,277 to Takahashi, et al. (hereinafter, merely “Takahashi”).

Claim 1 recites, *inter alia*:

“ A movable robot apparatus comprising:

safety level status detecting means for **detecting a safety level status**;

... wherein the safety level of the detected safety level status is determined by comparing the detected safety level status to a plurality of threshold values and grouping the detected safety level status as a function of the comparison result,

wherein the safety level is a volume calculated as a function of a joint angle, a capability of the joint angle, a timing of a potential risk, and a planned action; and

control means for performing a control process so as to **implement prescribed countermeasures according to said safety level status** detected by said safety level status detecting means and said safety level detected by said safety level detecting means,

wherein when the safety level increases, corresponding to a different safety level status, while the countermeasures are performed, the control means **determines whether to maintain current countermeasures.**”

Regarding claim 1, the Office Action cites Yamamoto, which teaches

“provid[ing a] means for effectively preventing a robot from being damaged . . . if operated in an abnormal posture”. (Yamamoto at column 1, lines 47-50) Further, Yamamoto teaches a “robot apparatus that can restore its normal posture by itself from an abnormal posture such as a tumbling posture and a method of controlling the posture of a robot.” (Yamamoto at column 1, lines 51-55) Additionally, the robot’s “control section [is] constantly watching the . . . robot [] to detect any falling posture” (Yamamoto at column 7, lines 18-20) “Whenever the control section [] detects a falling posture, it makes the robot restore the normal posture.” (Yamamoto at column 7, lines 23-25) Further, when the Yamamoto’s robot detects an intolerable acceleration, it “moves out of the falling posture . . . because . . . the robot may be subjected to a large external force” (Yamamoto at column 8, lines 11-14) And, “[i]f a falling posture is detected . . . [t]he processing operation proceeds . . . to restore the normal posture” (Yamamoto at column 8, lines 42-45) Finally, Yamamoto teaches that “the process of detecting the falling posture and restoring the normal posture will be repeated to make the robot restore the normal posture quickly.” (Yamamoto at column 9 lines 16-20)

Claim 1 recites detecting a safety status, a control means to implement prescribed countermeasures according to the safety level status and determine whether to maintain current

countermeasures. Applicant claims a method of detecting a safety level status, implementing prescribed countermeasures, and determining whether to maintain current countermeasures.

The Applicant's claims are further defined by noting the limitation that "the safety level is a volume calculated as a function of a joint angle, a capability of the joint angle, a timing of the potential risk, and a planned action" which are then used to "implement prescribed countermeasures". As demonstrated, Applicant's claimed control means to implement prescribed countermeasures according to a safety level status based on a volume calculated as a function of a joint angle, a capability of the joint angle, a timing of a potential risk, and a planned action is not anticipated by Yamamoto's teaching of "method of controlling the posture of a robot". (See Yamamoto at column 1, lines 45-55)

Therefore, claim 1 is patentable over Yamamoto. Additionally, independent claims 6, 11-13 and 15 are patentable over Yamamoto for similar or somewhat similar reasons.

V. DEPENDENT CLAIMS

The other claims in this application are each dependent from one of the independent claims discussed above and are therefore believed patentable for at least the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

Similarly, because Applicants maintain that all claims are allowable for at least the reasons presented hereinabove, in the interests of brevity, this response does not comment on each and every comment made by the Examiner in the Office Action. This should not be taken

as acquiescence of the substance of those comments, and Applicants reserve the right to address such comments.

CONCLUSION

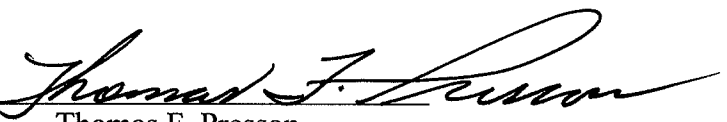
In the event the Examiner disagrees with any of statements appearing above with respect to the disclosure in the cited reference, it is respectfully requested that the Examiner specifically indicate those portions of the reference providing the basis for a contrary view.

In view of the foregoing amendments and remarks, it is believed that all of the claims in this application are patentable and Applicants respectfully request early passage to issue of the present application.

Please charge any additional fees that may be needed, and credit any overpayment, to our Deposit Account No. 50-0320.

Respectfully submitted,

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